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Traffic Bicycles Costa Mesa
Recreation Bicycles
" " "

master plan of bikeways

city of costa mesa

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BIKEWAY STUDY REPORT

I. INTRODUCTION

A Bicycle Trails Committee consisting of members of the City staff was formed in June of 1974, at the request of the City Manager. The members of this Committee are as follows:

Bob Duggan	Assistant City Manager
Jim Anderson	Traffic Engineer
Mike Robinson	Assistant Planner
Rip Ribble	Recreation Superintendent
John Regan	Police Lieutenant

The purpose of this Committee was to review all the data collected on bicycle bikeways and to make specific recommendations regarding proposed bicycle lanes and trails. These recommendations have been made and are included within the text of this report.

The ultimate goal is for the Council to adopt a Master Plan of Bicycle Lanes and Trails throughout the City of Costa Mesa. The next step in the process now is for the Planning Commission to consider this document and to make recommendations to the Council. Anyone having any questions regarding the contents of this report should contact Bob Duggan in the City Manager's office.

II. TYPES OF BIKEWAYS

Definition--The literature on bicycle path planning utilizes a variety of terms to describe various types of facilities, such as bikeways, bike lanes, bike routes, bike paths, and so forth. Therefore, for purposes of clarity and consistency, it is necessary to define the terms that will be used throughout this report.

A. **Bicycle**

A device upon which a person may ride, propelled by human power through a belt, chain or gears, and having one (unicycle), two (bicycle) or three (tricycle) wheels.

B. **Bike Lane**

Any street designated for bicycle use on which markings and postings designate a corridor on the street reserved for the exclusive use of bicycles.

C. **Bike Trail**

A surfaced path separated from public streets reserved exclusively for bicycle use.

D. **Bike Routes or Bikeways**

Any bike lane or trail designated on the bike route Master Plan.

E. **Bike Route System or Bikeways Network**

The City-wide network of bike routes and related facilities, officially designated in the Bike Route Plan, connecting points of educational, cultural, civic and recreational interest with residential, commercial and industrial areas.

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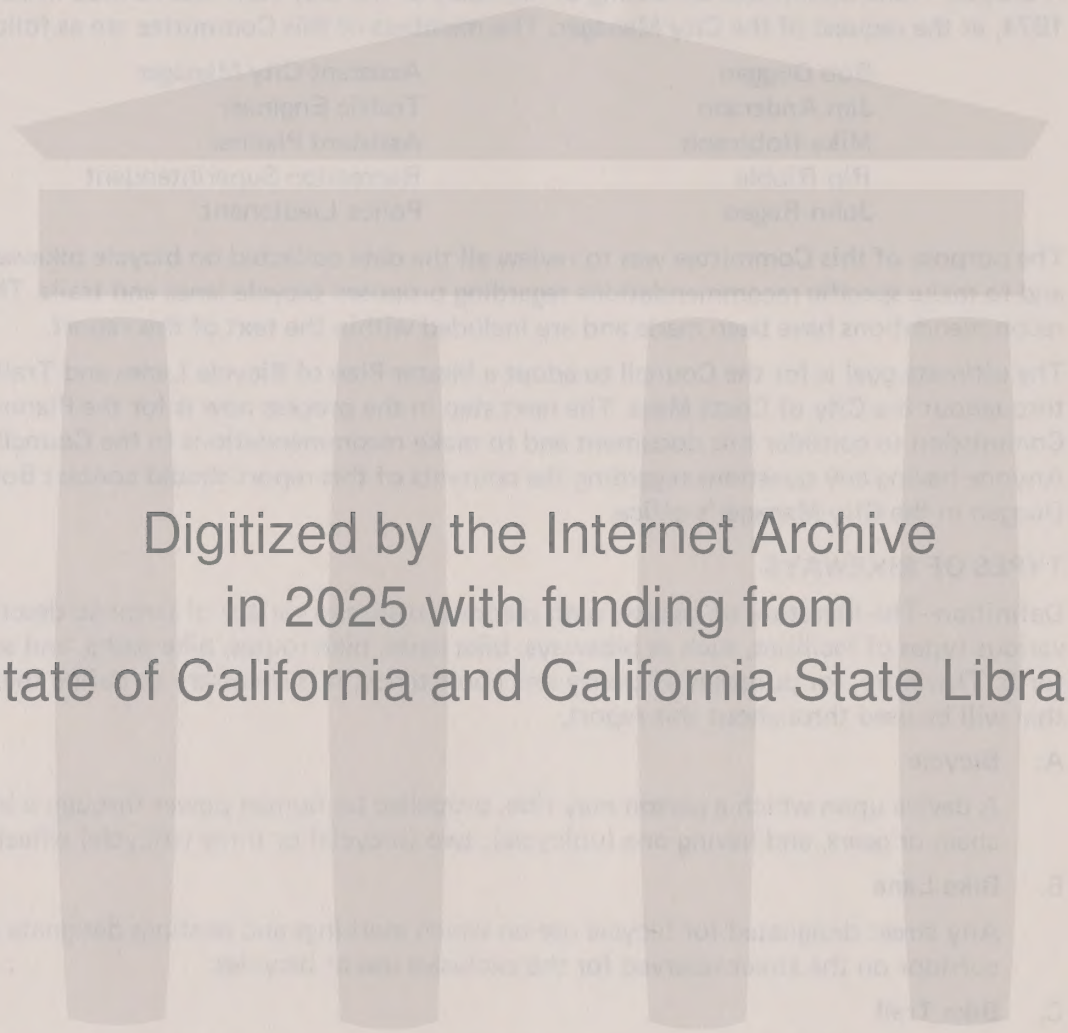

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F. **Bike Lanes vs. Bike Trails**

1. Bike lanes (on-street routes) involve the utilization of public streets which provide ready-made surfaces and rights-of-way for cycling purposes. These lanes provide a reasonably direct route to places of interest and this is the quickest and cheapest means for developing a truly functional network.

2. Bike Trails (off-street routes) involves the use of flood control channels, railroad rights-of-way, public and private lands, where there is a complete separation from motor vehicle traffic.

   These normally are the safest, most relaxing routes, yet are also the most expensive to develop. Surfaces have to be laid, land purchased, easements obtained, fenced for safety, etc.

III. RECOMMENDATIONS TO THE PLANNING COMMISSION AND CITY COUNCIL

A. Adopt a Master Plan of Bike Routes and a development phasing program as official City policy.

B. Appropriate adequate funds each year for bike route development.

C. Designate members of the City staff as the Bike Route Committee who shall direct the implementation of the plan. Such responsibilities shall include, but not be limited to:

1. Coordination of bikeway development and construction with various City departments.

2. Review and update of the plan prior to the beginning of each implementation phase.

3. Coordination of bikeway development and funding with other governmental agencies when possible.

4. Review all new street improvement plans for possible bikeway development.

D. Prior to the beginning of each implementation phase or adoption of a specific route, conduct a public hearing to consider implementation costs, expected completion date, parking prohibition ordinances and possible funding sources.

E. Adopt a public education and information program to encourage safe and enjoyable use of the bikeways plan.

IV. ROUTE SELECTION CONSIDERATIONS

In order to develop an effective and comprehensive bikeway network for the City of Costa Mesa, four major questions must be answered. First of all, who uses the bikeways? Second, why do these people ride bicycles? Third, where do these people want to go? Finally, what is the best way to get these people to their destinations?

Although most bicycle riders are children, studies have shown that the majority of planned bikeway route users are either adults or young adults. The trips made by children are generally within the child's neighborhood, short and close to home. Since these trips are widely dispersed, lacking a definite origin and destination pattern, they generally cannot be served by designated bikeways.

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The reasons for riding bicycles are as varied as the number of individual riders. However, these reasons can be catagorized into three major groups. These groups can be described as (1) Functional riders (2) Recreational riders and (3) Sport riders.

The functional rider is generally an adult with a specific purpose in mind. Usually this purpose is for commuting to work or school or for errand running. The functional rider uses the bicycle as an alternative form of transportation and is interested in the most direct and convenient route to his destination. Because of these characteristics, these riders usually use major or secondary arterial streets and concentrate along major routes. The functional rider is more apt to be attracted to major commercial, educational or employment centers such as South Coast Plaza and Village, Mesa Verde Center, the downtown area, the Civic Center, Orange Coast College, Southern California College, Costa Mesa and Estancia high Schools and the Segerstrom and Irvine Industrial districts.

The recreational rider has a much broader age range and is usually done by entire families. This is generally a leisure time activity which is generated by major recreational facilities or scenic interests. The recreational rider is less concerned with direct routes as he is with a pleasant and enjoyable route.

The sport rider is, again, generally an adult who is more experienced with more sophisticated equipment. They usually travel longer distances at higher speeds and are concerned about continuous routes with a minimum of interruptions.

The major recreational facilities in the area include the tennis courts at TeWinkle Park, the colleges and high schools, City parks, the Santa Ana River Trail and the Huntington and Newport Beaches. The Santa Ana River Trail also serves the needs of the sport riders as well as the recreational riders.

master plan of bikeways

activity nodes

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V. BICYCLE LANES CRITERIA

Based on the previously mentioned ridership characteristics and the fact that Costa Mesa is 86 percent developed with little area left for off-street bicycle trails, it becomes obvious that the majority of bikeways will consist of bike lanes. Because of this, all possible streets within the City were considered as possible bike lanes. To determine which streets would be best suited for bike lanes the following questions were considered.

A. Does the street have a direct route or link with designated activity nodes?

B. Is the roadway wide enough to accommodate bicycle and automobile traffic?

C. Does the street have a large amount of on-street parking? If so, it would be less feasible.

D. Are there future plans for widening the street?

E. What are the traffic volumes and speed limit on the street?

F. Is it possible to use a one-way system on adjacent parallel streets?

G. Does the street provide a cross-town route or a linkage within a cross-town route?

H. Is the street compatible with existing or proposed bicycle routes of other adjacent cities?

I. Would the inclusion of a bike lane in the street require major and expensive modifications to street facilities?

J. If a bike lane is possible, is there a parallel street which offers a better route?

The final proposed Master Plan of bikeways was developed by applying all of the above considerations to all possible bike routes (both trails and lanes). As can be seen on the bike route map, the majority of the bike lanes are located on arterial streets. The arterials were chosen because they provide the most convenient and direct routes when compared to residential streets and because most of the arterials do not allow on-street parking which must be prohibited to provide bike lanes. It should also be pointed out that bicycle lanes would be required on both sides of these designated streets. Bicycles would be traveling the same direction as traffic on both sides of the street. The only exception is on 19th and Costa Mesa Streets where one-way traffic is proposed. As a result only one lane on one side of these streets would be utilized. All proposed bicycle **trails** would be two-way trails.

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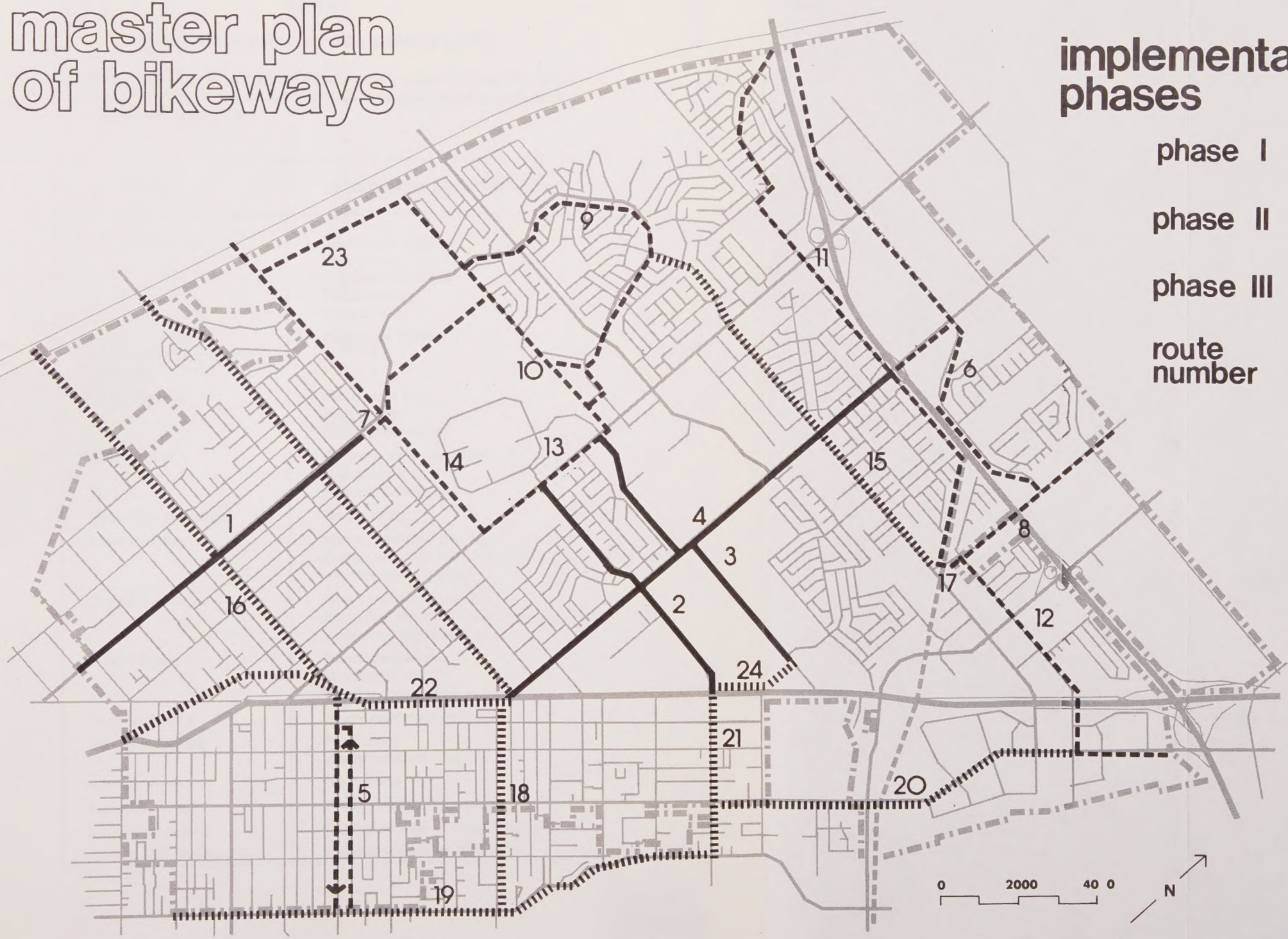

implementation phases

phase I

phase II

phase III

route number 1

costa mesa

TABLE I

STREETS NOT SUITABLE FOR BICYCLE LANES

The following Table includes a number of major streets in Costa Mesa which were considered for possible bicycle lanes but were rejected because of the reasons mentioned below.

STREET	REASONS NOT RECOMMENDED
Harbor Boulevard	Insufficient width High speeds High traffic volumes Too expensive Right-of-Way
Paularino Avenue (Fairview-Corona del Mar Freeway)	Residential Parking
Adams Avenue	Insufficient width High speeds High traffic volume
Bristol Street	Freeway bridge not wide enough High speeds High traffic volumes
MacArthur Boulevard	No demand
Santa Ana Avenue	Heavy residential parking Orange not close enough to separate route into a one-way couple system
Orange Avenue	Heavy residential parking Santa Ana not close enough to separate route into a one-way couple system
Wilson Street	Insufficient width High traffic volume Parallels Joann Trail
Pomona Avenue	Heavy residential parking
Monrovia Avenue	No demand Heavy residential parking
Whittier Avenue	No demand
Hamilton Street	Heavy residential parking
Sunflower Avenue	Deleted in favor of South Coast Drive
17th & 18th Streets	Deleted in favor of 19th Street

VI. IMPLEMENTATION PHASES AND COSTS

The Master Plan of Bikeways was designed to be implemented in three development phases. The phased development of bikeways is based on the costs of implementation versus the amount of available funding, the availability of existing right-of-way versus the need to acquire additional land, the possibility of future street widening, and finally the opportunity to develop continuous inter-city routes compatible with bicycle master plans of adjacent cities.

Table II indicates the selected bikeway routes, the problems which must be resolved to complete each segment of the routes, the costs involved in constructing each segment and the implementation phase into which each segment was included. The following map illustrates the implementation phases of the bikeways plan.

The routes included in **Phase I** are routes which can be implemented immediately and related costs would be primarily for street paint. The major segments of Phase I, Fairview Road and Placentia Avenue, are now being widened and both have plans for bike lanes. The remaining segments are designed to develop a central core to serve the colleges, Civic Center, the high schools and TeWinkle Park. The estimated cost of Phase I is estimated at $16,500.

The routes included in **Phase II** contain the largest portion of the bikeway network. Because of the complexity and costs (approximately $125,350) of development, Phase II can be completed as soon as funding is available. These routes were designed to extend the routes of Phase I and provide a link with the major activity centers and neighborhoods within Costa Mesa. The Phase II routes provide access to the Santa Ana River Trails, Fairview Regional Park, Mesa Verde, North Costa Mesa, South Coast Plaza and the industrial areas.

The routes included in **Phase III** provide the final linkage and connections within the Master Plan. However, because of the costs involved in implementation (primarily street widening) these routes represent an extended completion date. The major aspect of Phase III is the extention of cross-town linkages along Baker, Victoria, 22nd Street, 19th Streets, and Del Mar Avenue. These routes provide additional access to the River Trail and connections with county-wide bikeways.

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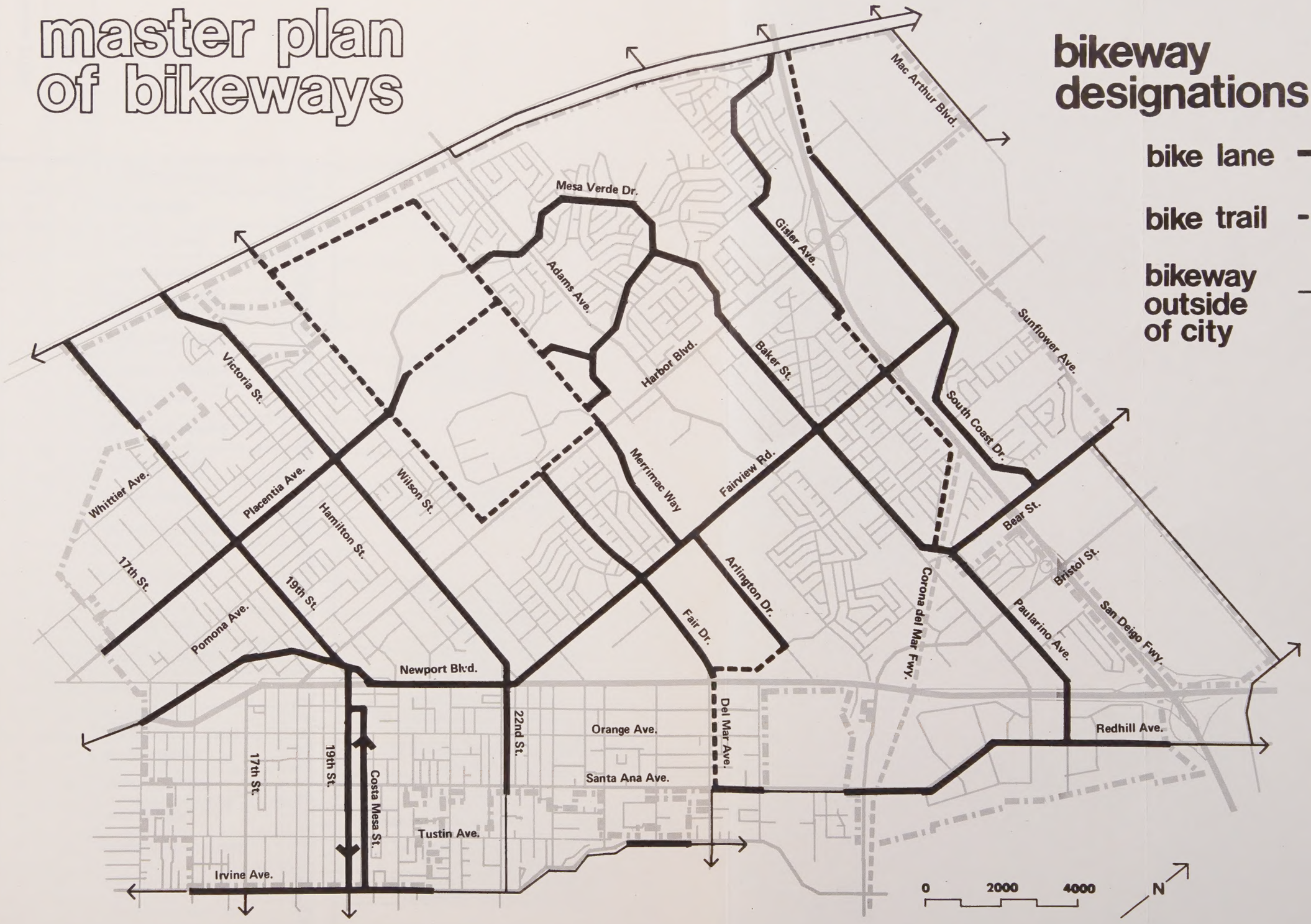

bikeway designations

bike lane ——————

bike trail - - - - - - - - -

bikeway outside of city ——————

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ROUTE NUMBER	PHASE	ROUTE NAME	STREET SEGMENTS	PROBLEMS REQUIRING CHANGES									COST (Dollars)			REMARKS
				Street Widening (Others)	Parking Prohibited	Median Modification	Street Widening (City)	River Crossing	Additional Right of Way	Trail Construction			Striping and Signing	Trail Construction	Bridge Construction	
1	I	PLACENTIA AVENUE	WEST 16TH STREET TO WILSON STREET			●	1975						3,864 X			
2	I	CIVIC CENTER	FAIR DRIVE: NEWPORT TO HARBOR		●								2,350 X			
3	I	REGIONAL PARK	ARLINGTON & MERRIMAC TEWINKLE TO HARBOR				F						7,340 X	X		
4	I	FAIRVIEW ROAD	NEWPORT BOULEVARD TO SOUTH COAST DRIVE				1975						2,550 X			
5	II	EAST 19TH STREET (COSTA MESA STREET)	IRVINE AVENUE TO NEWPORT BOULEVARD		●		1975						1,750 X			
6	II	SOUTH COAST DRIVE	SANTA ANA RIVER TO BEAR STREET	●	●				●	●			8,750 X	X		
7	II	PLACENTIA AVENUE	WILSON TO REGIONAL PARK TRAIL			●			●	●			20,600 X	X		INCLUDES COST OF RELOCATING MEDIAN SIGNAL
8	II	BEAR STREET	PAULARINO AVENUE TO SUNFLOWER		●								1,400 X			
9	II	MESA VERDE DRIVE	REGIONAL PARK TO COSTA MESA GOLF COURSE		●	●				●			3,525 X			
10	II	REGIONAL PARK	HARBOR TO SANTA ANA RIVER						●	●			19,150 X	X		
11	II	GISLER AVENUE	SANTA ANA RIVER TO BEAR STREET		●					●			19,100 X	X	X	COST INCLUDES BIKE BRIDGE OVER SANTA ANA RIVER
12	II	PAULARINO AVENUE	BEAR STREET TO REDHILL AVENUE	●	●					●			2,650 X			
13	II	CIVIC CENTER	HARBOR: MERRIMAC TO JOANN ALLEY						●	●			7,700 X	X		
14	II		JOANN: HARBOR TO SANTA ANA RIVER					●	●	●			40,725 X	X	X	COST INCLUDES BIKE BRIDGE OVER SANTA ANA RIVER
15	III	BAKER STREET	BEAR STREET TO MESA VERDE DRIVE EAST	●	●	●	F						3,550 X			TO BE DONE AFTER BAKER STREET WIDENING
16	III	WEST 19TH STREET	NEWPORT BOULEVARD TO SANTA ANA RIVER		●		F	●	●	●			32,500 X	X	X	COST INCLUDES BIKE BRIDGE OVER SANTA ANA RIVER
17	III	BEAR STREET	BAKER STREET TO PAULARINO AVENUE	●	●								300 X			TO BE DONE AFTER BEAR STREET WIDENING
18	III	22ND STREET (VICTORIA)	SANTA ANA AVENUE TO SANTA ANA RIVER	●	●		1979	●					3,050 X			TO BE DONE AFTER VICTORIA STREET & SANTA ANA BRIDGE WIDENING
19	III	IRVINE AVENUE	EAST 16TH STREET TO BAYCREST		●								975 X			TO BE DONE IN CONJUNCTION WITH OTHER AGENCY LANES
20	III	REDHILL AVENUE	BRISTOL STREET TO NORTHERLY CITY LIMITS	●									1,350 X			TO BE DONE IN CONJUNCTION WITH OTHER AGENCY LANES
21	III	CIVIC CENTER	DEL MAR: SANTA ANA TO NEWPORT	●	●		1979		●				900 X			TO BE DONE AFTER DEL MAR WIDENING
22	III	NEWPORT BOULEVARD	FAIRVIEW ROAD TO SOUTHERLY CITY LIMITS	●	●								X	X		CONSTRUCTION IN CONJUNCTION WITH NEWPORT FREEWAY
23	III	SANTA ANA RIVER	WEST 19TH STREET TO ADAMS AVENUE							●			17,325 X	X		EAST SIDE OF RIVER TO CONNECT TO COUNTY TRAIL AT ADAMS
24	III	TEWINKLE CONNECTOR	FAIR DRIVE TO ARLINGTON DRIVE						●	●			3,200 X	X		

VII. DESIGN STANDARDS

Although the exact specifications of each segment of the bikeway network cannot be determined at this time, there are general design standards which should be applied to all segments of the network. The following standards should be considered as guidelines for bike route locations and development:

A. The minimum standard width of all one-way bicycle trails or lanes shall be five feet while two-way trails shall be eight feet wide. A minimum standard of four feet will be tolerated for short distances near controlled intersections.

B. In areas of the City which contain major hills, bike routes should not exceed a six percent grade for extended lengths and never exceed a ten percent grade.

C. All bicycle trails shall be constructed of a hard, low-maintenance surface which is well drained.

D. All potential hazards within designated bikeways (storm drains, cross gutters) shall be sufficiently marked and identified, and if possible, modified to reduce accidents.

E. Supportive service facilities (such as restrooms, benches, drinking fountains and bicycle racks) should be considered along bike routes. When possible, these facilities should be located at existing activity nodes, schools or parks.

F. A comprehensive signing program consisting of directional and information signs should be developed for all segments of the bikeway network. Such signs should contain information for the cyclists such as route location and direction, distances between major activity points as well as motorists route identification and necessary alert signs.

G. The above standards should be amended to comply with the state-wide bikeway standards which are presently being developed by the State Department of Transportation.

VIII. COMMUNITY BICYCLE PROGRAM

A. Bicycle Safety Education

Bicycle safety must be a total community effort. It involves the cooperation of the Police Department, Traffic Engineering, school education and personalized training and supervision from the parents. Simply painting lines on the streets or conducting the regular bicycle rodeos on the school grounds will not make bicycle riding a safe practice on the public streets.

Bicycle lanes too often create a false sense of security for the bicyclist and are often not recognized or respected by the motorists. Mororists sometimes feel that their "rights of the road" are being infringed upon and they seemingly attack the bicyclists, throwing articles from the vehicle or trying to scare the rider off the roadway. Children may be taught to act like adults, but because of the stage of their physical development, they are not able to think like adults. This means that either we must create special areas for these youngsters to ride or their riding must be supervised by an adult or we should not allow them to ride on the public streets.

B. **Public Relations**

Before the enforcement of bicycle safety goes into full swing, the public must be informed as to why the program is being introduced and asked for their cooperation and assistance. Safety spots should be presented on local T.V. and over the radio. Representatives from the Police Department should visit the local service clubs and explain why citations will be written and ask for the members' support. Police Officers should be shown training films which are designed to re-emphasize the need for bicycle safety. Bicycle rules should be made available in many public places and the Police must work to gain the support of the local court judges regarding bicycle safety.

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